

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TENTATIVE ORDER NO. 89-081

SITE CLEANUP REQUIREMENTS FOR:

HEWLETT PACKARD
1501 PAGE MILL RD.
PALO ALTO
SANTA CLARA COUNTY

STANFORD UNIVERSITY
PALO ALTO
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. Site Description Hewlett-Packard operates an electronics research and production facility at 1501 Page Mill Road. The land has been leased by Hewlett-Packard from Stanford University since 1957. Hewlett-Packard is primarily responsible for this discharge and is hereinafter called a discharger for purposes of this Order. Stanford University is secondarily responsible for purposes of this Order.
2. This site was proposed to the National Priority List on October 15, 1984 and since that time the site has been regulated based on CERCLA and Health and Safety Code requirements. Since June 21, 1988, the site has been proposed by the EPA to become a RCRA site and be dropped from consideration as a NPL site. The Regional Board will continue to regulate the discharger's remediation and enforce consistent with CERCLA as amended by SARA.
3. On March 19, 1986, the Regional Board adopted Order No. 86-22 proscribing Waste Discharge Requirements for this site. Order No. 86-22 was amended on October 17, 1986 with Order No. 86-94. This amendment consisted primarily of a schedule extension for the provisions specified in the original Order.
4. The site is located along the border between the foothills of the Santa Cruz mountains and the Santa Clara Valley between Page Mill Road and Hanover Street. The site consists of seven buildings which house two separate Hewlett-Packard divisions: The Stanford Park Division and Hewlett-Packard Laboratories. The site also consists of two chemical storage sheds and the corporate gas station.
5. Hydrogeology The site is located on a ridge which is oriented in a northwest to south/southwest direction. The ground slopes northeastward from the site toward San Francisco Bay. The water table occurs at depths of approximately 50 to 60 feet below the surface. Beneath the water table to a depth of approximately 250 feet below surface, a total of six flow zones have been

identified. These flow zones are believed to part of the Santa Clara Formation, an older semi-consolidated formation of alluvial deposits.

6. Site History Nine underground solvent and waste solvent storage tanks were installed at the site between 1960 and 1978, all of these tanks have been removed. Past investigations have shown that five of these tanks had leaked chemicals into the subsurface soils. These five tanks have been excavated along with some soil containing chemicals.

Chlorinated solvents and aromatic solvents have been found in groundwater in the vicinity and downgradient of the two chemical storage sheds. It is believed that this pollution was possibly caused by five of the former underground storage tanks located in the vicinity of the storage sheds which had leaked.

The discharger has identified two other areas of groundwater contamination on the site which appear to be separate from the groundwater contamination in the vicinity and downgradient of the two chemical storage sheds. These areas are downgradient of Building 6 where groundwater containing chlorinated solvents has been detected, and in the vicinity of the Corporate gas station where fuel hydrocarbons have been detected in the groundwater (see site map).

7. Soil Investigation and Remediation Soil borings associated with soil contamination investigations have been conducted in the vicinities of the excavated tanks which had been shown to have leaked. Additionally, soil borings have been conducted in the vicinity of the corporate gas station (see site map).

Interim soil remediation has consisted of four vapor recovery systems installed in the vicinity of former underground tanks (2, 4A, 4B, 4F, and 4G). These systems have been operating since mid-1987.

8. Groundwater Investigations and Remediation A total of 58 groundwater monitoring wells have been constructed on the site, three of these wells are used as extraction wells. The primary contaminants detected on a regular basis in these monitoring wells include trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), acetone, benzene, and xylene.

The investigation of chemicals in the groundwater downgradient of the chemical storage shed has met Site Cleanup Requirements Order 86-22 as amended by 86-94, Provision C.2.c. to define the contaminant plume to Hanover Street. However, further groundwater investigations are necessary to characterize all contamination on the Hewlett-Packard property and these investigations have been identified in the workplan.

Groundwater extraction began in January 1988 from three wells located in the vicinity of the chemical storage sheds (wells 29, EW-1, and EW-2). The groundwater extraction rate has been under

10 gallons per minute and the groundwater is currently being treated with activated carbon prior to disposal to the sanitary sewer.

9. Work Plan The discharger submitted a work plan for the completion of a remedial investigation, feasibility study (RI/FS) on December 29, 1988, and a revised work plan on May 10, 1989.
10. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for South San Francisco Bay and contiguous surface and groundwaters.
11. The existing and potential beneficial uses of the groundwater underlying and adjacent to the dischargers facilities include:
 - a. Industrial process water supply
 - b. Industrial service supply
 - c. Agricultural supply
 - d. Municipal and domestic supply
12. The discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.
13. This action is an Order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
14. The Board has notified the dischargers and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharges and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
15. The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the dischargers shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS:

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. SPECIFICATIONS:

1. The storage, handling, treatment or disposal of polluted soil or groundwater shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. Hewlett-Packard shall conduct monitoring activities as needed to define the local hydrogeological conditions, and the lateral and vertical extent of the soil and groundwater pollution. Should monitoring results show evidence of pollution migration, additional plume characterization of pollutant extent shall be required.

C. PROVISIONS:

1. Hewlett-Packard shall submit to the Board acceptable monitoring program reports containing results of work performed according to a program prescribed by the Board's Executive Officer.
2. Hewlett-Packard shall comply with this Order immediately upon adoption with the exception that the discharger shall comply with Prohibitions A.1., A.2., and A.3., and Specifications B.1. to B.2. as modified in accordance with the following time schedule and tasks listed below. Within sixty (60) days of the Executive Officer's determination and actual notice to Stanford University that the "primarily responsible" discharger under this Order has failed to comply with this Order, Stanford University, as landowner of the property at 1501 Page Mill Road, shall itself then be responsible for complying with this Order.

COMPLETION DATE/TASK:

- a. 1) COMPLETION DATE: June 19, 1989
TASK: **BASELINE PUBLIC HEALTH EVALUATION WORKPLAN** Submit a technical report acceptable to the Executive Officer containing a workplan for the completion of a baseline public health evaluation prepared in accordance with the Superfund Baseline Public Health Evaluation Manual (EPA 540/1-86-060, October 1986).

- 2) **COMPLETION DATE:** September 1, 1989
TASK: BASELINE PUBLIC HEALTH EVALUATION:
Submit a technical report acceptable to the Executive Officer containing a baseline public health evaluation prepared in accordance with the Superfund Baseline Public Health Evaluation Manual (EPA 540/1-86-060, October 1986).

- b. 1) **COMPLETION DATE:** January 18, 1990

TASK: PROPOSED FINAL CLEANUP OBJECTIVES AND ACTIONS: Submit a technical report acceptable to the Executive Officer pursuant to the work plan described in Finding 8 as revised, and approved by the Executive Officer, containing the results of the remedial investigation and feasibility study evaluating alternative final remedial measures; and a separate technical report acceptable to the Executive Officer containing the recommended measures necessary to achieve final cleanup objectives; and the tasks and time schedule necessary to implement the recommended final remedial measures.

The submittal of technical reports evaluating immediate, interim and final remedial measures will include a projection of the cost, effectiveness, benefits and impact on public health, welfare and environment of each alternative measure. The remedial investigation and feasibility study shall be consistent with the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300); Section 25356.1 (c) of the California Health and Safety Code; CERCLA guidance documents with reference to Remedial Investigation, Feasibility Studies, and Removal Actions; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California".

3. If the dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the dischargers shall promptly notify the Executive Officer and the Board may consider revision to this Order.
4. Technical reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted monthly to the Board commencing with the report due June 19, 1989 monitoring the previous months activities. On a monthly basis thereafter, these reports shall consist of a letter report that, (1) summarizes work

completed since submittal of the previous report, and work projected to be completed by the time of the next report, (2) identifies any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles, and (3) includes, in the event of non-compliance with Provision C.2. or any other Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order.

On a quarterly basis, commencing with the report due July 17, 1989 the quarterly reports shall include, but need not be limited to, updated water table and piezometric surface maps for all affected water bearing zones, cross-sectional geological maps describing the hydrogeological setting of the site, and appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells, and identifying adjacent facilities and structures.

5. The dischargers shall submit to the Board technical reports acceptable to the Executive Officer containing Site Safety Plans, and Site Sampling Plans. Additionally, as required, the discharger shall submit data packages for the purpose of data validation.
6. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer. This requirement shall not apply to monthly reports and quarterly progress reports provided the hydrogeological information contained in these reports has been submitted or is scheduled for submittal by a registered geologist, engineering geologist, or professional engineer.
7. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
8. The dischargers shall maintain in good working order, and operate as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
9. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:

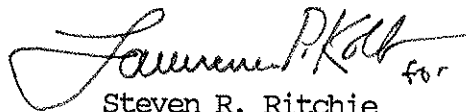
- a. Santa Clara Valley Water District
- b. Santa Clara County Health Department
- c. City of Palo Alto
- d. State Department of Health Services/TSCD
- e. U. S. Environmental Protection Agency,
Region IX T45

The Executive Officer may additionally require copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to be provided to a local repository for public use and for compilation of an Administrative Record.

10. The dischargers shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:
 - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the terms and conditions of this Order.
 - c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.
11. The dischargers shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order within 60 days of said changes.
12. If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the dischargers shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.

13. The Board will review this Order periodically and may revise the requirements when necessary.
14. Regional Board Orders No. 86-22 and 86-94 are hereby rescinded.

I, Steven R. Ritchie Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on May 17, 1989.

A handwritten signature in cursive script, appearing to read "Steven R. Ritchie", followed by a small "for" in a separate script.

Steven R. Ritchie
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

HEWLETT-PACKARD
1501 PAGE MILL ROAD FACILITY
GROUNDWATER SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a waste discharger's monitoring program, also referred to as a self-monitoring program, are: (1) To document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) To develop or assist in the development of effluent or other limitations, discharger prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) To prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the EPA Method 8000 series described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", dated November 1986; or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violations of Requirements

In the event the discharger is unable to comply with the conditions of the site cleanup requirements and prohibitions due to:

- a. maintenance work, power failures, or breakdown of waste treatment equipment, or
- b. accidents caused by human error or negligence, or
- c. other causes such as acts of nature, or
- d. poor operation or inadequate system design.

The discharger shall file a written technical report at least 15 days prior to advertising for bid on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said report shall describe the nature, costs and scheduling of all action necessary to preclude such discharge.

In addition, if the noncompliance caused by items (a), (b), (c) or (d) above is with respect to any of the order's limits, the waste discharger shall promptly accelerate the monitoring program to monthly or as required by the Board's Executive Officer for those constituents which have been violated. Such analysis shall continue until such time as the effluent limits have been attained, or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self-Monitoring Report.

2. Bypass Reports

Bypass reporting shall be an integral part of the regular monitoring program report. A report on bypassing of untreated units shall be made which will include cause, time and date, duration and estimated volume bypassed, method used in estimating volume, and persons and agencies notified. Notification to the Regional Board shall be made immediately by telephone (415-464-1255), followed by a written account within 15 days.

3. Self-Monitoring Reports

a. Reporting Period:

- (1). Written reports shall be filed regularly each quarter within forty-five days from the end of the quarter monitored.

b. Letter of Transmittal:

A letter transmitting self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violation. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory. Monitoring reports and the letter transmitting reports shall be signed by either a principal executive officer or his duly authorized employee. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

c. Data Results:

- (1). Results from each required analysis and observation shall be submitted in the quarterly self-monitoring regular reports. Results from compliance points listed in the Order shall also be submitted in the monthly report. All chromatographic peaks for purgeable halocarbons and/or volatile organics shall be identified and quantified in the quarterly and monthly regular reports, if a peak is identified in two consecutive samples. A GC/MS analysis shall be performed and all peaks identified and reported on each well according to Table 1 and on each new well

immediately after installation and well development. Results shall also be submitted for any additional analyses performed by the dischargers at the specific request of the Board for parameters for which effluent limits have been established and provided to the dischargers by the Board.

- (2). The quarterly and, if noncompliance occurs, the monthly reports shall include a discussion of unexpected operational changes which could affect performance of the extraction system, such as flow fluctuations, maintenance shutdown, etc.
- (3). The quarterly report shall also identify the analytical procedures used for analyses either directly in the report or by reference to a standard plan accepted by the Executive Officer. Any special methods shall be identified and should have prior approval of the Board's Executive Officer.
- (4). Hewlett-Packard shall describe, in the quarterly SMR, the reasons for significant increases in a pollutant concentration at a well onsite. The description shall include:
 - 1). the source of the increase,
 - 2). how Hewlett-Packard determined or will investigate the source of the increase, and
 - 3). what source removal measures have been completed or will be proposed.
- (5). Original lab results shall be retained and shall be made available for inspection for three years after origination or until after all continuing or impending legal or administrative actions are resolved.
- (6). A map shall accompany the quarterly report, showing all sampling locations.
- (7). Hewlett-Packard shall describe in the quarterly monitoring report the effectiveness of the actions taken to regain compliance if compliance is not achieved. The effectiveness evaluation shall include the basis of determining the effectiveness, water surface elevations for each well used to determine water surface elevation contours and water quality data.
- (8). The annual report shall be combined with the fourth quarter regular report and shall include cumulative data for the current year. The annual report for December shall also include minimum, maximum, median and average water quality data for the year.

d. SMP Revisions:

Additional long term or temporary changes in the sample collection frequency and routine chemical analysis may become warranted as monitoring needs change. These changes shall be based on the following criteria and shall be proposed in a quarterly SMR. The changes shall be implemented no earlier than 45 days after self-monitoring report is submitted for review or not at all if the proposal is found to be unacceptable.

Criteria for SMP revision:

- (1). Discontinued analysis for a routine chemical parameter for a specific well after a one-year period of below detection limit values for that parameter.
- (2). Changes in sampling frequency for a specific well after a one-year period of below detection limit values for all chemical parameters from that well.
- (3). Temporary increases in sampling frequency or changes in requested chemical parameters for a well or group of wells because of a change in data needs (e.g., evaluating groundwater extraction effectiveness or other remediation strategies).

D. DESCRIPTION OF SAMPLING STATIONS
Groundwater

<u>Stations</u>	<u>Description</u>
Listed in Table 1	Monitoring wells, observation wells, and extraction wells.

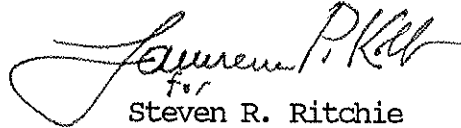
E. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be given in Table 1.

I, Steve R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data established in Regional Board Order No. 89-081.
2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the dischargers and revisions will be ordered by the Executive Officer.


for
Steven R. Ritchie
Executive Officer

Effective Date: May 17, 1989

Attachments: Table 1

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

SAMPLING STATIO	>>>	8	13	14	17	18	19	20	21	22	23	26	36	37	42	43
TYPE OF SAMPLE		G														
Flow Rate (gal/day)																
pH (units)																
Temperature (deg. C)																
EPA 8010 for: purgeable priority pollutants		Q														
GC/MS Scan(EPA 8240)		1/Y*														

LEGEND FOR TABLE 1

G = grab sample
 D = once each day
 M = once each month
 Q = quarterly, once in February, May, August and November
 M/Q = monthly for three months at startup of operation;
 reduced to quarterly thereafter
 2/Y = Once in March and once in September
 1/Y = once per year

* EPA 8010 not required for months when EPA 8240 is performed.